3 Visualizations!

Introduction

This module serves as an introduction to creating simple visualizations through Google Sheets and Plotly.

Objectives

1. Students will be able to accurately represent data.
2. Students will be able to make basic visualizations on Google Sheets to analyze trends in data.
3. Students will learn how to interact with Plot.ly UI and create a "Simple" Plot.ly chart.

Agenda

1. Source on "What is Data Visualization" (with examples) https://www.searchenginejournal.com/what-is-data-visualization-why-important-seo/288127/
2. Examining credible datasets activity https://docs.google.com/presentation/d/1tL3ySrPi7HcO_Us5HiDcTjkXgT1KHVbxZcF1icxOazQ/edit?usp=sharing
3. Best Data Visualization Blogs https://www.tableau.com/learn/articles/best-data-visualization-blogs
4. Making basic data visualizations on Google Sheets
5. Understanding Plotly/How to create basic visualizations

Activities

Don't Know The Truth (15-20 minutes)

Purpose:

Students will understand what credible and accurately represented data sets look like.

Materials:

Computers
Google slides (Good and Bad graphs)
https://docs.google.com/presentation/d/1tL3ySrPi7HcO_Us5HiDcTjkXgT1KHVbxZcF1icxOazQ/edit?usp=sharing

Directions:

1. Split students into groups of 3-4
2. Facilitators will display different data sets and students must sort the visualizations into groups by misleading or not misleading.
3. Make new groups of 3-4, Have members compare rankings, and have the new groups come to a consensus on the rankings.
4. All groups share their rankings and the class makes a consensus on the data
5. Name the different ways that make a misleading graph.

Discussion:

1. How did you decide on how a data set was misleading?
2. What filter could you use to filter out these bad data sets?

Teaching Google Sheets Visualizations (10-15 minutes)

Purpose:

Teach students how to use Google Sheets to create graphs. Making simple graphs is a good way to quickly find and analyze trends in data.

Materials:

Computers
EV Dataset (Link)

Directions:

1. Share screen with Google Sheets and walk students through creating a bar graph and line chart.
2. Make a bar graph of cars by manufacturer.
3. Make a line graph of cars by model year.

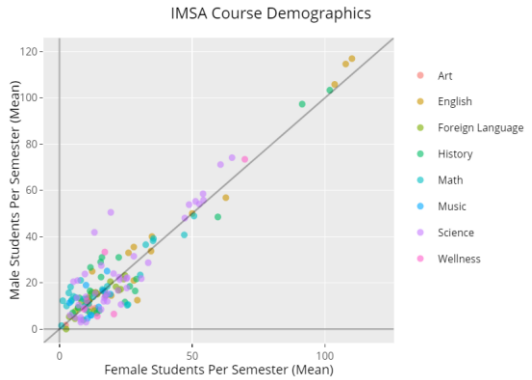
Something something Plot.ly UI (15-20 minutes)

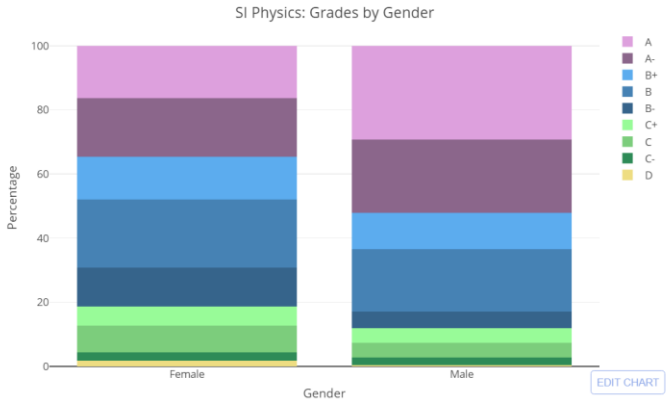
Purpose:

Students will learn to create "Simple" charts on Plot.ly as well as work through the "Structure" tab on Plot.ly.

Materials:

Computers
EV Dataset (Link)





Directions:

1. Show the visualizations Shubhi made.
2. Project your computer. Have everyone make a Plotly account with their IMSA email.
3. Demonstrate how to use the spreadsheet function, traces, and choosing columns for traces. Occasionally ask if people are following along or if they're having difficulties.
4. Give the class the data set and tell them that they need to create a line, pie and bar graph. Let them do the graph making.
5. Make it a race! Make it a challenge for people to work quickly and effectively.

Sources

Misleading graph real life examples
https://www.statisticshowto.datasciencecentral.com/misleading-graphs/
5 Misleading Graph Examples https://venngage.com/blog/misleading-graphs/